

BOOK REVIEWS

PETER HEDDEN and STEPHEN G. THOMAS (eds.). 2006. **Annual Plant Reviews, Volume 24: Plant Hormone Signaling**. (ISBN 1-4051-3887-4, hbk.). Blackwell Publishing. 2121 State Ave., Ames, IA 50014-8300, U.S.A. and 9600 Garsington Road, Oxford, OX4 2DQ, UK. (**Orders:** www.blackwellprofessional.com, orders@ames.blackwellpublishing.com, 515-292-0140, 515-292-3348 fax, 1-800-862-6657). \$199.99, 348 pp., illustrations, 6¼" × 9½".

The 24th volume of Blackwell Publishing's Annual Plant Review series focuses on plant hormones, signaling molecules that do not always conform to the classic definition of a hormone. For example, ethylene, a hormone exploited by our ancestors to hasten fruit ripening in the form of wound ethylene, is actually a gas. It was once used to light street lamps and was one of the first anesthetics. The gas's anesthetic effect was first discovered when a group of Chicago scientists investigating why flowers in a greenhouse would not bloom discovered that the culprit was the ethylene used to light the greenhouse. They decided to investigate the gas's effect on animals, and the world's first anesthetic was discovered. Salicylic acid is another important plant hormone with medical applications. It is used today as a topical acne and wart treatment and is the basis of the salicylate class of drugs, which include aspirin. In plants, salicylic acid is involved in protection against pathogens, thermogenesis, flowering, leaf abscission, and stomatal closure. Technological advancement has led to many recent advances in the understanding and identification of plant hormones and their receptors, actions, and interactions with the environment and each other. This volume is dedicated to recent advances in the relatively new field of plant hormone research, including eight chapters that focus on the biosynthesis and metabolism of the "classic" plant hormones: ethylene, salicylic acid, cytokinin, the gibberellins, abscisic acid, the brassinosteroids, the oxylipins, and auxin. Auxin is the first plant hormone to be discovered. It was identified as a plant growth promoter in 1926, although its effects were first observed in the 1800's. Chapter 2 covers auxin metabolism and "how plants perceive and respond to auxin." It includes a discussion of auxin receptors. The first chapter focuses on abscisic acid, which is a key hormone in regulating the drought response in plants, including mediation of "seed maturation processes such as desiccation tolerance and dormancy." Chapter 4 is focused on cytokinin, including its biosynthesis and metabolism. Its roles include the regulation of shoot and root growth, leaf senescence, stress response, and pathogen resistance. Cytokinin is believed to effect two types of signaling local (paracrine or autocrine) and long-distance, or endocrine-like signaling. Chapter 9 focuses on plant hormone distribution and transport. The last two chapters discuss plant hormones' role in reproduction, including effects in fruit, flower, and seed development. The role of plant hormones is still being elucidated, along with how their signaling occurs within plants. It is believed that future research will reveal the importance of protein degradation in this process.—*Marissa N. Oppel, Collections and Research Assistant, Botanical Research Institute of Texas, Fort Worth, TX, 76102-4060, U.S.A.*

WILLIAM C. PLAXTON and MICHAEL T. McMANUS (eds.). 2006. **Annual Plant Reviews, Volume 22: Control of Primary Metabolism in Plants**. (ISBN 1-4051-3096-2, hbk.). Blackwell Publishing. 2121 State Ave., Ames, IA 50014-8300, U.S.A. and 9600 Garsington Road, Oxford, OX4 2DQ, UK. (**Orders:** www.blackwellprofessional.com, orders@ames.blackwellpublishing.com, 515-292-0140, 515-292-3348 fax, 1-800-862-6657). \$219.99, 386 pp., 6¼" × 9½".

Primary metabolism in plants is defined by the editors of this volume "...as the primary auxotrophic pathways in plants...and those in common with the primary pathways in mammalian cells." This edition of the *Annual Plant Reviews* series covers the control of primary metabolism in plants. Metabolic control, as opposed to metabolic regulation, is the adjustment of a metabolic pathway output "...in response to an external signal." The editors write in the preface that the ability to control the rates of metabolic processes is so essential to the survival of living cells that it must be as old as life itself. This book includes reviews covering the genomics, proteomics, and metabolomics of the control of primary metabolism, as well as the control of specific metabolic pathways and enzymes. There have been many advances in these fields over the last few years, and many discoveries related to plant metabolic control have been made. Aimed at scientists in the fields of plant biochemistry, physiology, molecular biology, and cell biology, the reviews gathered in this volume are excellent sources of information about the basics, as well as recent advances in our understanding of the control of primary metabolism in plants.—*Marissa Oppel, Collections and Research Assistant, Botanical Research Institute of Texas, Fort Worth, TX, 76102-4060, U.S.A.*